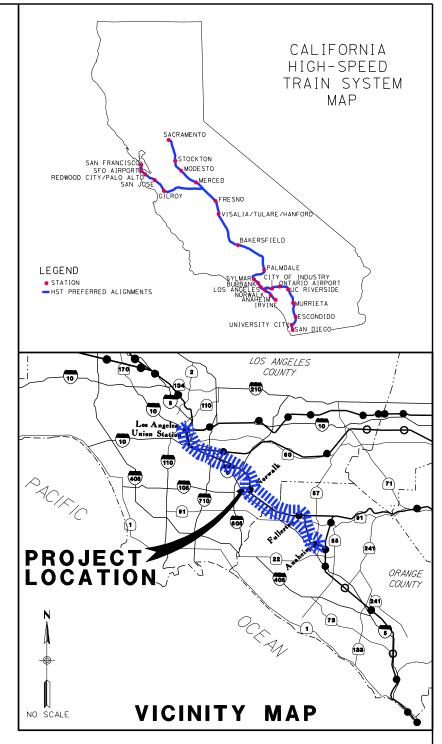


CALIFORNIA HIGH-SPEED TRAIN PROJECT LOS ANGELES TO ANAHEIM SECTION

# CONSOLIDATED SHARED TRACK ALTERNATIVE

5% DESIGN FINAL SUBMITTAL

(EQUIVALENT 15% DESIGN IN-PROGRESS SUBMITTAL)



NOT FOR CONSTRUCTION FOR INTERNAL USE ONLY

5% DESIGN FINAL SUBMITTAL JUNE 30, 2010

CONTRACT NO.

HSR06-0005

DRAWING NO.

BJ0801

SCALE

NO SCALE

SHEET NO.

THIS NOTE SHEET IS PREPARED TO ADDRESS DESIGN CHANGES THAT HAVE BEEN THE RESULT OF OUTREACH ACTIVITIES WITH NUMEROUS STAKE HOLDERS, SUCH AS GATEWAY CITIES AND SOUTHERN CALIFORNIA RAILROAD OPERATORS, SINCE THE PRE-FINAL SUBMITTAL MADE ON JUNE 7, 2010. THIS DESIGNER NOTE MUST BE COMBINED WITH PREVIOUS DESIGNER NOTES TO GAIN A FULL UNDERSTANDING OF THE DESIGN

DUE TO THE EVOLVING DEVELOPMENTS, THE DRAWINGS CONTENT CONTAINED IN ALL DISCIPLINES ILLUSTRATED IN THIS SUBMITTAL SET OF PLANS SUPERSEDE AND WILL MORE FULLY DESCRIBE THE DEVELOPMENT OF THE 5% SHARED TRACK ALIGNMENT AS IT IS KNOWN AT THIS DATE. INDIVIDUAL DRAWINGS MAY NOT BE CONSISTENT AND/OR COMPATIBLE WITH PREVIOUS DRAWINGS OF THE SAME SHEET NUMBER. THE TRACK ALIGNMENT AS SHOWN ON THE SUBMITTAL REPRESENTS THE LATEST UPDATES BASED ON COMMUNITY OUTREACH MEETINGS AS OF JUNE 24 2010. DIFFERENCES BETWEEN VARIOUS DISCIPLINARY DESIGN PLANS ARE EXPECTED AND SUBJECT TO VERIFICATION AND ADJUSTMENT IN THE NEXT DESIGN PHASE.

TWO WEBINAR CONFERENCES WERE HELD ON JUNE 7 AND JUNE 21, 2010 TO DISCUSS THE ALIGNMENT BETWEEN LAUS AND REDONDO JUNCTION CROSSING WITH PMT OPERATIONS, EMT AND METROLINK. A COORDINATION MEETING WITH LA-PALMDALE AND LA-SD TEAMS FOR THE LAUS CONNECTION WAS HELD AT STV LA OFFICE ON JUNE 15, 2010. OUTREACH MEETINGS WITH INDIVIDUAL GATEWAY CITIES WERE ARRANGED RESPECTIVELY ON JUNE 10 WITH THE CITY OF NORWALK, JUNE 16 WITH THE CITY OF SANTA FE SPRINGS, JUNE 23 WITH THE CITY OF BUENA PARK, AND JUNE 24 WITH THE CITIES OF MONTEBELLO AND PICO RIVERA. A LA/MTA TECHNICAL WORKING GROUP MEETING WAS HELD ON JUNE 22 TO VERIFY THE DESIGNS AND CONNECTIONS WITH THE LA CITY FAMILY. AN ALIGNMENT REVIEW MEETING WAS HELD WITH THE FRA, AUTHORITY STAFF AND PMT ON JUNE 17.

THE RESULTS OF THE CONTINUOUS EFFORTS HAVE LEAD TO THE DESIGN CHANGES DETAILED BELOW. A REVISED TRACK CHART IS INCLUDED TO COMPLY WITH THESE RESULTS.

#### ALIGNMENT DESIGN:

- AT-GRADE ARTIC STATION PLATFORM IS MOVED 40FT WEST TO ALLOW FOR END BUFFER ZONE.
- DOUBLE REVERSED SHARP CURVE LAYOUT PROPOSED BY MTA-METROLINK IMMEDIATE SOUTH OF LAUS (SAME LEVEL PLATFORM SCHEME) IS USED, WITH SPIRALS INSERTED BETWEEN THE CURVE AND THE TANGENT AND CROSSOVERS SHIFTED SOUTH OF THE 1ST STREET BRIDGE. IN A WEBINAR WITH THE FRA AND AUTHORITY STAFF ON JUNE 17, IT WAS INDICATED THAT THE G, OR ACCELERATION FORCE FOR PASSENGER COMFORT MIGHT BE RELAXED TO ALLOW FOR HIGHER SUPER ELEVATION AND TO INCREASE SPEEDS THRU THIS AREA. NO FURTHER INFORMATION HAS BEEN OBTAINED AS TO WHAT THIS RELAXATION MIGHT BE, SO THIS IS NOT REFLECTED IN THE CURRENT SUBMITTAL.
- 3. AN UNDERGROUND CONNECTION LOCATION FOR THE FUTURE LA-SD SEGMENT IS OPTIMIZED BETWEEN THE 4TH STREET BRIDGE AND THE 6TH STREET BRIDGE. THIS LOCATION COULD ALSO BE USED FOR AN AERIAL CONNECTION IF DEEMED NECESSARY BY THE LA-SD TEAM
- 4. BETWEEN LAUS AND REDONDO JUNCTION, DEDICATED TRACKS ARE REQUIRED FOR HST TRAINS PER PMT OPERATIONS.
- 5. FUNCTIONAL SECTIONS FOR BOTH AT-GRADE AND HIGH ELEVATED SCHEMES ARE INCLUDED. THE AT-GRADE SECTION (3M+2H) REQUIRES APPROXIMATELY 135 FT ROW. THE EXACT ROW TAKE WILL DEPEND ON THE FINAL M3 TRACK LOCATION. EFFORTS HAVE BEEN EXERCISED TO BALANCE THE ROW TAKE AND THE GRADE SEPARATION RECONSTRUCTION COSTS.
- 6. ALIGNMENT THROUGH MONTEBELLO, PICO RIVERA AND SANTA-FE SPRINGS CONTINUES TO RECEIVE INTENSE OUTREACH ACTIVITIES. THE FINAL ALIGNMENT THROUGH THIS AREA HAS NOT BEEN CONCLUDED AT THIS SUBMITTAL.
- 7. THE ALIGNMENT REMAINS AT GRADE AFTER IT EMERGES FROM UNDERGROUND EAST OF FULLERTON AIRPORT.
- A THIRD MAINLINE TRACK IS ADDED FROM SOUTH OF SOUTH STREET TO ARTIC STATION.

- 9. METROLINK TURN-BACK FACILITY, NEAR FULLERTON STATION, WHICH IS CURRENTLY UNDER CONSTRUCTION, WILL BE LEFT IN PLACE BUT ALL TRACKS THAT SUPPORT THIS FACILITY WILL HAVE TO BE RELOCATED.
- 10. PER INSTRUCTION FROM PMT TONY DANIEL OVER THE WEEKEND OF JUNE 26 THAT THE ACCESS ROAD PROVIDED BETWEEN THE M TRACK AND HST TRACK IS NOT REQUIRED.
- 11. REPLACEMENT OF BNSF TRACKS IN THE AREA BETWEEN THE 1ST STREET BRIDGE AND THE 4TH STREET BRIDGE WEST OF LA RIVER IS TO BE IMPLEMENTED IN THE NEXT PHASE, PENDING UPON INPUTS FROM BNSF ABOUT THE FINAL REPLACEMENT LOCATIONS. IT IS ENVISIONED AN ADDITIONAL THREE 10,000 FT NEW TRACKS ARE NEEDED IN THE VICINITY OF BNSF LA MIRADA YARD.
- 12. THE VERTICAL ALIGNMENT BETWEEN SANTA FE SPRINGS STATION AND VALLEY VIEW AVENUE MAY BE ELEVATED PENDING UPON FURTHER COMMUNITY OUTREACH RESOLUTIONS.

#### RIGHT-OF-WAY IMPACT:

- 1. ADJUSTMENT OF EXISTING TRACKS AND GRADE SEPARATIONS TO FIT HST TRACKS IN ORDER TO EVALUATE RIGHT-OF-WAY IMPACTS HAS NOT BEEN ACCOMPLISHED FOR THE ENTIRE ALIGNMENT YET. THE PROPOSED ALIGNMENTS AND RIGHT-OF-WAY LINES WILL BE FURTHER STUDIED AND ASSESSED WITH RESPECT TO CAPITAL COST, CONSTRUCTION DURATION, AND CONSTRUCTABILITY IN THE NEXT DESIGN PHASE.
- 2. THE FUNCTIONAL ELEVATED VIADUCT SCHEME MAY FIT INTO THE EXISTING RIGHT-OF-WAY LIMITS BY RELOCATING OR SHIFTING EXISTING TRACKS TO PROPER NEW LOCATION. HOWEVER TRAIN INTERLOCKING AND SIGNALING ISSUES SHALL BE ADDRESSED ADEQUATELY IN THE NEXT DESIGN PHASE.
- 3. THE FUNCTIONAL AT-GRADE SCHEME WILL HAVE RIGHT-OF-WAY IMPACT IN AREAS WHERE EXISTING RIGHT-OF-WAY LIMITS ARE NOT MORE THAN 135 FT. RELOCATING OR SHIFTING EXISTING TRACKS TO ACHIEV MINIMAL RIGHT-OF-WAY TAKE SHALL TAKE INTO ACCOUNT THE TRAIN INTERLOCKING AND SIGNALING REQUIREMENTS.

#### STRUCTURE:

- 1. TWO VIADUCTS ARE NEEDED TO MEET THE ALIGNMENT VERTICAL PROFILE DESIGN:
  - a. LAUS TO 1ST STREET BRIDGE COMPOSITE STEEL GIRDER CONCEPT DUE TO EXTREMELY SHARP CURVES EXISTING IMMEDIATELY SOUTH OF LAUS AND NORTH OF THE 1ST STREET BRIDGE.
  - b. HOBART YARD TO CARMENITA ROAD.
- TUNNEL/TRENCH CONNECTIONS ARE NEEDED TO MEET THE ALIGNMENT VERTICAL PROFILE DESIGN:
  - G. BETWEEN 4TH STREET BRIDGE AND 6TH STREET BRIDGE WEST OF LA RIVER TO PROVIDE TUNNEL PORTAL CONNECTION TO LA-SD ALIGNMENT FOR ITS ENVIRONMENTAL CLEARANCE ANALYSIS. THE 4TH STREET BRIDGE SPANS DIRECTLY ABOVE HST TRACKS WILL REQUIRE RECONSTRUCTION DUE TO FOUNDATION CONFLICTS.
  - D. BETWEEN 7TH STREET BRIDGE AND I-10 BRIDGES WEST OF LA RIVER TO PROVIDE AMTRAK 8TH STREET MAINTENANCE YARD CONNECTION TO EXISTING MAINLINE TRACKS. PMT OPERATION HAS RULED OUT THE CROSS TRACK MOVEMENT AT GRADE FOR HST TRACKS.
  - C. BETWEEN DALE STREET AND GILBERT STREET WITH CITY OF FULLERTON TO ALLOW FOR HST TRACK TO DUCK UNDER EXISTING MAINLINE TRACKS AND STAY HST TRACKS UNDER FULLERTON AIRPORT FLIGHT PATH SAFETY ENVELOPE, AS REQUESTED BY CITY OF BUENA PARK. AS A RESULT, EXISTING METROLINK BUENA PARK STATION COULD BE RELOCATED TO WEST OF DALE STREET OR TO BEACH BLVD.
- 3. ELEVATED VIEWS OF EXISTING 1ST STREET BRIDGE, 4TH STREET BRIDGE, 6TH STREET BRIDGE, 7TH STREET BRIDGE, OLYMPIC BLVD. BRIDGE, AND I-10 USING AS-BUILT INFORMATION AVAILABLE TO STV RECENTLY ARE UPDATED TO SHOW MAJOR STORM DRAINS AND LA-SD TUNNEL CONNECTION.
- 4. A NEW LA RIVER CROSSING LOCATED NORTH OF AND IN PARALLEL WITH EXISTING REDONDO RIVER CROSSING IS NEEDED TO ENSURE HST TRACKS ARE DEDICATED BETWEEN LAUS AND THE REDONDO JUNCTION. THE NEW CROSSING WILL BE USED BY METROLINK/AMTRAK TRAINS WHILE THE EXISTING ONE WILL BE CONVERTED FOR USE BY HST TRAINS.

- 5. A SECTION OF EXISTING REDONDO RIVER CROSSING WITH PROPOSED SIDE WALKWAY MODIFICATION IS INCLUDED. THE MODIFICATION INCLUDES THE ALLOWANCE FOR THE INSTALLATION OF OCS POLE SUPPORT.
- LEEVATED GUIDEWAY STRUCTURES ARE REQUIRED TO SUPPORT THREE TRAIN SET LOADS: HST, METROLINK COASTER LINERS, AND AMTRAK SURF-LINERS. IN ANTICIPATION OF HEAVY WHEEL LOADS, THE SPANS HAVE BEEN REDUCED TO THE MAXIMUM 90FT FOR PRECAST PRESTRESSED BOX GIRDER SCHEME AND 155FT FOR COMPOSITE STEEL PLATE GIRDER SCHEME.

#### GRADE SEPARATION CIVIL:

- 1. GRADE SEPARATION ROADWAY PROFILES ASSOCIATED WITH THE ANAHEIM WEST YARD ARE INCLUDED WITH THE MODIFICATIONS AS DESCRIBED ABOVE.
- TO FURTHER EXPLAIN THE COMPLEXITY OF THE AT-GRADE OPTION, A PRELIMINARY CONSTRUCTION PHASING AND SEQUENCING SCHEME FROM TELEGRAPH AVE. TO LAKELAND ROAD IS INCLUDED. THIS EXAMPLE ILLUSTRATES THE COMPLEXITY OF THE AT-GRADE ALIGNMENT AND THE RESULTANT STRUCTURE MODIFICATION/NEW CONSTRUCTION AND THE TRACKAGE RELOCATION BETWEEN ADJACENT GRADE SEPARATIONS WHILE MAINTAINING SAFE TRAIN OPERATION.

#### LAUS SAME LEVEL STATION:

- THE PLATFORM LAYOUT WAS GIVEN BY METROLINK. THE CONCEPT LEADS TO DISPLACEMENT OF THE GOLD LINE STATION WESTWARD BY MORE THAN 80FT.
- 2. TOP OF RAIL ELEVATION IS REFINED TO EL 310.6 TO ACCOMMODATING LA PALMDALE LINE NORTH APPROACH CONNECTION.
- 3. EACH CENTER PLATFORM IS 30FT WIDE.
- 4. LAUS STATION SPACE PROGRAM DESIGN WILL BE DEVELOPED IN NEXT PHASE THRU TWO TO THREE CHARRETTE OPPORTUNITIES WITH EMT AND MTA, OWNER OF THE STATION.

#### ARTIC AT-GRADE STATION:

1. THE PLATFORM AND TRACK LAYOUT WAS GIVEN BY PMT. STV WAS TASKED TO VERIFY THE VERTICAL CIRCULATION NEED IN TERMS OF FIRE LIFE SAFETY REQUIREMENTS.

NOT FOR CONSTRUCTION FOR INTERNAL USE ONLY

DESIGNED BY
J. MARTINE Z

DRAWN BY
D. BARRAZA
CHECKED BY
KT SU
IN CHARGE
D. THOMSON

BREV DATE BY SUB APP
DESCRIPTION

DESIGNED BY
J. MARTINE Z

DRAWN BY
D. BARRAZA
CHECKED BY
KT SU
IN CHARGE
D. THOMSON
DATE
OG-30-10





# CALIFORNIA HIGH-SPEED TRAIN PROJECT LOS ANGELES TO ANAHEIM

CONSOLIDATED SHARED TRACK ALTERNATIVE
5% DESIGN
DESIGNER NOTES FOR FINAL SUBMITTAL

HSR06-0005

DRAWING NO.

BJ0829

NO SCALE

THIS NOTE SHEET IS PREPARED TO ADDRESS DESIGN CHANGES THAT HAVE BEEN THE RESULT OF OUTREACH ACTIVITIES WITH NUMEROUS STAKE HOLDERS, SUCH AS GATEWAY CITIES AND SOUTHERN CALIFORNIA RAILROAD OPERATORS, SINCE THE DRAFT SUBMITTAL MADE ON MAY 19, 2010.

DUE TO THE EVOLVING DEVELOPMENTS, THE DRAWINGS CONTENT CONTAINED IN ALL DISCIPLINES ILLUSTRATED IN THIS SUBMITTAL SET OF PLANS SUPERCEDE AND WILL MORE FULLY DESCRIBE THE DEVELOPMENT OF THE 5% SHARED TRACK ALIGNMENT AS IT IS KNOWN AT THIS DATE. INDIVIDUAL DRAWINGS MAY NOT BE CONSISTENT AND/OR COMPATIBLE WITH PREVIOUS DRAWINGS OF THE SAME SHEET NUMBER.

IN THE MEETING HELD ON MAY 27 2010 AT PMT LA OFFICE, BNSF EXPRESSED THE AT-GRADE SPLIT TRACK (2M+2H+1M OR M+2H+2M) SCHEME NEEDS FURTHER EVALUATION BY BNSF AND INITIALLY IS NOT FAVORABLE (OFFICIAL RESPONSE IS STILL OUTSTANDING). PMT INSTRUCTED STV ON MAY 28 TO START REVISING THE AT-GRADE SCHEME BETWEEN REDONDO JUNCTION RIVER BRIDGE (APPROXIMATELY MP 144.0) AND FULLERTON JUNCTION (APPROXIMATELY MP 165.0) BY USING THE "3M+2H ELEVATED HST SHARED CONCEPT" FOR THE ENVIRONMENTAL PROCESS ANALYSIS. THE ELEVATED GUIDEWAY WILL ALTERNATE FROM ONE SIDE OF THE EXISTING TRACKAGE TO THE OTHER DEPENDENT UPON SENSITIVE LAND USES.

A REVISED TRACK CHART IS INCLUDED TO COMPLY WITH THESE INSTRUCTION.

THE FOLLOWING SUMMARIZES THE MAJOR EVENTS.

#### ALIGNMENT DESIGN:

- 1. AT-GRADE ARTIC STATION PLATFORM IS MOVED 40FT WEST TO ALLOW FOR END BUFFER ZONE.
- DOUBLE REVERSED SHARP CURVE LAYOUT PROPOSED BY MTA-METROLINK IMMEDIATE SOUTH OF LAUS (SAME LEVEL PLATFORM SCHEME) IS USED, WITH SPIRALS INSERTED BETWEEN THE CURVE AND THE TANGENT AND CROSSOVERS SHIFTED SOUTH OF THE 1" STREET BRIDGE.
- A CONNECTION SECTION FOR THE FUTURE LA-SD SEGMENT SOUTH OF 1" STREET. THIS CONNECTION MAY BE EITHER A TUNNEL OR AERIAL, AS CLEARED BY THE LA-SD ENVIRONMENTAL DOCUMENT.
- 3 STORAGE/LAY UP TRACKS SOUTH OF LAUS ARE INCLUDED PER DIRECTION FROM PMT. A PORTION OF THE RED LINE TRACKS WILL BE AFFECTED BY THE STORAGE TRACK INSTALLATION. ALL HSR, METROLINK, AND AMTRAK TRAINS WILL SHARE THE USE OF THE REDONDO JUNCTION BRIDGE. PRELIMINARY OPERATIONAL ANALYSIS SHOWS THERE IS ENOUGH CAPACITY TO ACCOMODATE ALL PLANNED TRAIN OPERATIONS. FUNCTIONAL SECTIONS FOR BOTH AT-GRADE AND ELEVATED ARE INCLUDED. THE AT-GRADE SECTION (2M+2H+M) REQUIRES APPROXIMATELY 140FT ROW. THE ELEVATED SECTION IS STILL BEING REFINED TO REACH THE GOAL OF REQUIRING NO ADDITIONAL ROW TAKE. THE EXACT ROW TAKE FOR THE "3M+2H" ELEVATED HST SHARED CONCEPT WILL DEPEND ON THE LOCATION OF EXISTING M1 TRACK. RELOCATION OF M1 THROUGH M3 WILL BE MINIMIZED TO REDUCE CONSTRUCTION IMPACTS ON EXISTING GRADE SEPARATIONS. STV IS IN THE PROCESS OF INCORPORATING PMT'S INSTRUCTION REGARDING THE FULL ELEVATED CONCEPT BETWEEN HOBART YARD AND FULLERTON JUNCTION. AS A RESULT. THE ALIGNMENT WITHIN THE SAID AREA REMAINS AS THE DRAFT SUBMITTAL WITH EXCEPTION THAT SOME AREAS WITH THE AT-GRADE "2M+2H+M" SCHEME ARE CHANGED TO THE AT-GRADE "3M+2H" SCHEME.

### STRUCTURE:

- 1. FIVE VIADUCT PLANS FOLLOWING THE DRAFT SUBMITTAL ALIGNMENT ARE INCLUDED. FUNCTIONAL VIADUCT SECTION MEETING TM REQUIREMENTS IS APPLIED. THE REVISED DECK WIDTH IS 48FT-6IN WITH 3FT WALKWAY ON BOTH SIDE OF THE
- 2. ELEVATED VIEWS OF EXISTING 1" STREET BRIDGE, 4™ STREET BRIDGE, 6™ STREET BRIDGE, 7™ STREET BRIDGE, OLYMPIC BLVD. BRIDGE, AND I-10 USING AS-BUILT INFORMATION AVAILABLE TO STV RECENTLY ARE INCLUDED. THE ELEVATION SECTION VIEWS PROVIDE VERTICAL CLEARANCE AS WELL AS THE LOCATION OF PROPOSED M AND H TRACKS BENEATH THE BRIDGES.
- A SECTION OF EXISTING REDONDO RIVER CROSSING WITH PROPOSED SIDE WALKWAY MODIFICATION IS INCLUDED. THE MODIFICATION INCLUDES THE ALLOWANCE FOR THE INSTALLATION OF OCS POLE SUPPORT.
- GRADE SEPARATION STRUCTURES ASSOCIATED WITH ANAHEIM YARD ARE INCLUDED. WITH THE FOLLOWING MODIFICATIONS:
  - a. BOTH HST AND METROLINK SHARE EXISTING TRACKAGE (TWO TRACKS) TO COMPLY WITH THE 50FT ROW RESTRICTION.
  - b. ONE OF THE NORTH YARD LEAD TRACKS IS DELETED PER PMT INSTRUCTION. ROAD CLOSURES AND GRADE SEPARATIONS ARE NOT FINALIZED AT THIS TIME AND MAY CHANGE AS FURTHER OUTREACH AND TRAFFIC ANALYSIS IS COMPLETED.

# GRADE SEPARATION CIVIL:

- 1. GRADE SEPARATION ROADWAY PROFILES ASSOCIATED WITH ANAHEIM YARD ARE INCLUDED WITH THE MODIFICATIONS AS DESCRIBED ABOVE.
- TO FURTHER EXPLAIN THE COMPLEXITY OF THE AT-GRADE OPTION, A PRELIMINARY CONSTRUCTION PHASING AND SEQUENCING SCHEME FROM TELEGRAPH AVE. TO LAKELAND ROAD IS INCLUDED. THIS EXAMPLE ILLUSTRATES THE COMPLEXITY OF THE AT-GRADE ALIGNMENT AND THE RESULTANT STRUCTURE MODIFICATION/NEW CONSTRUCTION AND THE TRACKAGE RELOCATION BETWEEN ADJACENT GRADE SEPARATIONS WHILE MAINTAINING SAFE TRAIN OPERATION.

#### 8™ STREET YARD CONCEPT:

- 1. AN INDEPENDENT STUDY WAS PERFORMED TO STUDY THE FEASIBILITY OF PLACING A HST LEVEL 3 ROLLING STOCK MAINTENANCE YARD ONTO THE EXISTING AMTRAK YARD SITE. THIS SCHEME HAS NOT BEEN DISCUSSED, SHOWN, NOR CLEARED WITH THE OWNING OR OPERATING RAILROADS AS OF THE DATE OF THIS SUBMITTAL. THEREFORE, THIS STUDY IS FOR DISCUSSION PURPOSES AND DOES NOT NEED TO BE REVIEWED TECHNICALLY UNTIL CONCURRANCE AS TO ACCEPTABILITY IS
- 2. THE STUDY RESULT IS INCLUDED IN A SET OF 6 PLANS.

NOT FOR CONSTRUCTION FOR INTERNAL USE ONLY

. MARTINEZ . BARRAZA HECKED BY KT SU n charge D. THOMSON REV DATE BY SUB APP DESCRIPTION 06-07-10





# CALIFORNIA HIGH-SPEED TRAIN PROJECT LOS ANGELES TO ANAHEIM

CONSOLIDATED SHARED TRACK ALTERNATIVE 5% DESIGN DESIGNER NOTES FOR PRE-FINAL SUBMITTAL

HSR06-0005 RAWING NO BJ0830 NO SCALE

SHEET NO.

- THE DEVELOPMENT OF FEASIBLE TRACK SECTIONS IS AN ONGOING EFFORT REQUIRING THE INPUT FROM MANY DIFFERENT STAKEHOLDERS: CALIFORNIA HIGH SPEED RAIL AUTHORITY, FEDERAL RAILROAD ADMINISTRATION, BURLINGTON NORTHERN SANTA FE RAILROAD, LA MTA, OCTA, RCTC, SANDAG, METROLINK, AMTRAK, PROGRAM MANAGEMENT TEAM, AND ENGINEERING MANAGEMENT TEAM. THE IDEALIZED SECTIONS PRESENTED ARE TO GENERATE DISCUSSION AND INPUT AND THEY WILL CONTINUE TO REQUIRE REFINEMENT. THE GOAL OF THE ALIGNMENT IS TO REDUCE RIGHT OF WAY ACQUISITIONS AND THIS CAN ONLY OCCUR IF THE 5 TRACKS CAN BE DESIGNED TO FIT WITHIN (OR VERY CLOSELY FIT WITHIN) THE EXISTING MINIMAL ROW WIDTH OF 100 FT. THERE ARE LOCATIONS ALONG THE ALIGNMENT WHERE THE ROW WIDTH IS GREATER THAN 100 FT INASMUCH THE SEPARATION DISTANCES BETWEEN TRACKS OR OTHER SUPPORTING INFRASTRUCTURE MAY BE ABLE TO BE WIDENED. CONSTRUCTION FEASIBILITY IS ADDRESSED IN THE IDEALIZED TYPICAL SECTIONS. FURTHER CONSTRUCTABILITY EVALUATION WILL BE ENTAILED ALONG WITH THE PROGRESS OF THE DESIGN OPTION. THE PROGRAM MANAGEMENT TEAM IS CURRENTLY APPRAISING THE ALIGNMENT CONCEPT FROM HST OPERATIONAL NEEDS.
- 4. THE ALIGNMENT DESIGN HAS BEEN PERFORMED TO ADDRESS THE FOLLOWING INTENTS:
  - a. PROVIDE 3 BNSF TRACKS SHARED WITH A REDUCED NUMBER OF METROLINK/AMTRAK TRAINS
  - b. PROVIDE 2 HST TRACKS SHARED WITH METROLINK/AMTRAK TRAINS
  - C. PROVIDE A CORRIDOR FOR HST/METROLINK/AMTRAK TRAINS THAT WILL MEET FRA/BNSF/HST REQUIREMENTS FOR INTRUSION PROTECTION
  - d. STAY WITHIN A 100 FT WIDE FOOTPRINT WITH THE 5 TRACKS. THIS MAY BE WIDENED AT LOCATIONS WHERE THERE ARE EXTENDED LENGTHS OF ROW THAT ARE WIDER.
  - e. MAINTAIN EXISTING METROLINK STATIONS IN THEIR CURRENT CONFIGURATION WHERE POSSIBLE
  - f. MAINTAIN BNSF ACCESS TO BOTH SIDES OF ROW TO ALLOW FOR THE SERVICING OF INDUSTRIAL CUSTOMERS ALONG THE CORRIDOR
  - g. UTILIZE THE EXISTING CHARACTERISTICS OF THE CORRIDOR TO PROVIDE LOCATIONS FOR CROSSOVERS FOR OPERATIONAL FLEXIBILITY FOR BNSF AND METROLINK/AMTRAK TRAINS
- 5. STATION SPACE PROGRAM DESIGN IS EXCLUDED ENTIRELY.
- 6. THE ALIGNMENT DESIGN HAS BEEN PERFORMED TO REFLECT THE SHARED TRACK CONCEPT TRACK CHART (DRAWING NO. BJ0832) RESULTED FROM A TWO DAY WORK SHOP HELD IN MAY 2010 AT PB ORANGE OFFICE (CA) AMONG KEY STAKEHOLDERS.
- 7. KEY ALIGNMENT DESIGN ELEMENTS ARE BRIEFED IN THE FOLLOWING TO ASSIST READERS OR REVIEWERS OF THIS SUBMITTAL AND TO EXPLAIN THE SHARED TRACK CONCEPT PARAMETERS:
  - G. THE LAUS SAME LEVEL CONCEPT PROPOSED BY MTA/METROLINK IS REFLECTED IN THE STATION PLAN LAYOUT. THE SAME LEVEL CONCEPT ENTAILS A CONFIGURATION OF FOUR (4) CENTER PLATFORMS WITH 8 PLATFORM TRACKS FOR METROLINK AND THREE (3) CENTER PLATFORMS WITH 6 PLATFORM TRACKS FOR CA HST. THE HST LAUS SCHEME FOLLOWS THE MTA/METROLINK SCHEME, AND IS POTENTIALLY SUBJECT TO REFINEMENT IN FUTURE SUBMITTAL.
  - b. ELEVATED GUIDEWAY IS ENVISIONED FROM LAUS SOUTH TO OVER EXISTING 1" STREET BRIDGE. SUBSEQUENT INFORMATION FROM METROLINK/MTA INDICATES THAT THIS ALIGNMENT SHOULD PASS UNDER 1" STREET. THIS ALIGNMENT IS BEING REVIEWED AT THIS TIME.
  - C. A LOCATION FOR CONNECTING THE SAN DIEGO LINE HAS BEEN PROPOSED BY STAKEHOLDERS TO BE LOCATED BETWEEN 1" AND 4" STREETS, BUT IS SUBJECT TO CHANGE AS THE DESIGN OPTION EVOLVES
  - . CA HST AND METROLINK WILL SHARE THE EXISTING REDONDO JUNCTION BRIDGE TO CROSS LA RIVER, AVOIDING THE NEED FOR A NEW BRIDGE CROSSING. A NEW SET OF CONNECTION TRACKS WILL BE REQUIRED ON THE EAST END OF THE REDONDO JUNCTION BRIDGE AS THE HST TRACKS WILL DIVERGE. SIMILARLY, A NEW SET OF CONNECTION TRACKS WILL BE REQUIRED ON THE NORTH END OF THE REDONDO JUNCTION BRIDGE AS THE METROLINK TRACKS WILL DIVERGE.

- e. BNSF WILL ACCESS THE STORAGE TRACKS ON THE WEST LA RIVER BANK VIA A NEW FLY OVER TRACK CONSTRUCTED WEST OF THE LA RIVER, DIVERGING FROM THE NORTH TRACK OF THE BNSF MAINLINE CONNECTING THE ALAMEDA CORRIDOR AND HOBART YARD
- f. ELEVATED GUIDEWAY IS ENVISIONED FROM EAST OF SOTO STREET, OVER INTERSTATE HIGHWAY I-5, TO EAST OF GARFIELD AVENUE (SR 128)
- AT GRADE ALIGNMENT FROM GARFIELD TO SERAPIS AVENUE IS ENVISIONED BETWEEN THE MAINLINES OF THE BNSF TRACK TO ALLOW CONTINUED ACCESS TO INDUSTRIAL LOCATIONS ON THE SOUTH SIDE OF THE TRACK IN MONTEBELLO AND PICO RIVERA YARD ON THE NORTH SIDE OF THE TRACKS.
- a. ELEVATED GUIDEWAY IS ENVISIONED FROM SERAPIS AVENUE, OVER SAN GABRIEL RIVER AND INTERSTATE I-605, THE UNION PACIFIC RAILROAD LA HABRA SUB, AND PIONEER BLVD, EXTENDING OVER NORWALK BLVD AND COMING TO GRADE JUST EAST OF NORWALK BLVD.
- i. AT GRADE ALIGNMENT BETWEEN THE BNSF MAINLINES WILL RUN FROM EAST OF NORWALK BLVD TO JUST WEST OF LAKELAND AVENUE
- j. ELEVATED GUIDEWAY IS ENVISIONED FROM LAKELAND AVENUE, CROSSING OVER THE BNSF MAINLINES AND A STATION IS BUILT ON THE EAST SIDE OF THE EXITING METROLINK STATION. CROSSOVERS FOR BNSF MAINLINES WILL BE BUILT IN THIS LOCATION. THE ELEVATED GUIDEWAY WILL BE COME BACK DOWN TOT GRADE FAST OF CARMENITA AVENUE.
- K. AT GRADE FROM CARMENITA AVENUE TO JUST EAST OF BEACH BLVD WILL BE TWO HST TRACKS ON THE NORTH SIDE OF THE BNSF MAINLINES AS THIS AREA HAS NO INDUSTRIAL TRACKS TO THE NORTH AND THE 3 MAINLINES WILL PROVIDE BNSF OPERATIONS THE MAXIMUM FLEXIBILITY TO ACCESS THE LA MIRADA YARDS.
- I. ELEVATED GUIDEWAY IS ENVISIONED FROM BEACH BLVD (SR 39) OVER EXISTING METROLINK BUENA PARK STATION TO DALE STREET. THIS WILL PROVIDE ANOTHER LOCATION FOR CROSS OVER FOR ALL THE BNSF MAINLINES.
- m. AT GRADE FROM DALE STREET TO WEST OF HIGHLAND AVENUE BETWEEN BNSF MAINLINES TO ACCOMMODATE THE INDUSTRIAL TRACKS ON BOTH SIDES OF THE BNSF MAINLINES.
- D. ELEVATED GUIDEWAY IS ENVISIONED FROM WEST OF HIGHLAND AVENUE OVER EXISTING METROLINK FULLERTON STATION TO FULLERTON CREEK.
- O. AN ELEVATED FULLERTON STATION IS PROPOSED WEST OF HARBOR BLVD STRADDLING THE BNSF MAINLINES
- D. EXISTING TWO TRACK LAYOUT BETWEEN LA PALMA AVENUE AND SOUTH STREET IN THE CITY OF ANAHEIM REMAINS TO AVOID ADDITIONAL ROW TAKE.
- q. AN AT-GRADE HST ARTIC STATION CONCEPT PROPOSED BY PMT AND ARTIC CONSULTANT PB/HOK IS REFLECTED IN THE STATION PLAN LAYOUT. THE AT-GRADE CONCEPT ENTAILS A CONFIGURATION OF ONE (1) CENTER PLATFORM WITH 2 PLATFORM TRACKS FOR METROLINK AND TWO (2) SIDE PLATFORMS WITH 2 PLATFORM TRACKS FOR CA HST, DIRECTLY UNDER EXISTING SR57 HIGHWAY BRIDGE.
- r. THE ANAHEIM WEST YARD (LEVEL 3) WILL BE CONNECTED WITH ONE LEAD TRACK NORTH TO THE MAINLINE AND TWO LEAD TRACKS TO HST ARTIC STATION.
- 8. IDEALIZED TYPICAL CROSS SECTIONS (DRAWING NO. TJ3501 TO TJ3504) ARE DESIGNED TO DEMONSTRATE ONE POSSIBLE SOLUTION TO KEEPING THE 5 TRACKS INSIDE THE EXISTING 100FT ROW LIMITS. SOME OF THE PROPOSED HST FEATURES DIMENSIONS EITHER MEET THE EXCEPTIONAL CONDITIONS STIPULATED IN RELEVANT TECHNICAL MEMORANDUMS (TM) OR ARE DEEMED SUB-STANDARD.
- 9. CORRELATION OF THE IDEALIZED TYPICAL CROSS SECTIONS WITH THE ALIGNMENT DESIGN WILL BE DEVELOPED IN THE PRE-FINAL SUBMITTAL SCHEDULED ON JUNE 7, 2010.
- 10. IMPACT STUDY RESULTS OF THE SHARED TRACK CONCEPT ON EXISTING GRADE SEPARATIONS ARE ILLUSTRATED FOR DEMONSTRATION PURPOSE. BOTH TYPICAL SECTIONS IN GENERAL AND IN PARTICULAR LOCATIONS ARE PRESENTED.
- 11. VARIOUS STRUCTURAL CONFIGURATIONS ARE ANTICIPATED AT ROADWAY/WATER CROSSINGS IN THIS SHARED TRACK OPTION:
  - a. EXISTING RR UNDERPASS REPLACED BY AND/OR SUPPLEMENTED WITH NEW GRADE SEPARATION BRIDGES. HST TRACKS CARRIED ON EXISTING OR NEW BRIDGE. (SEE SK3781 AND SK3782)
  - b. EXISTING AT-GRADE CROSSINGS WHERE BNSF-DESIGNED GRADE SEPARATION HAS BEEN PLANNED BUT NOT YET CONSTRUCTED. ALL BNSF-DESIGNED GRADE SEPARATIONS CROSSING THE ALIGNMENT ARE INCOMPATIBLE WITH THE CONFIGURATION REQUIRED TO SUPPORT THE RR AND HST TRACKS OF THIS PROJECT. SIGNIFICANT MODIFICATION OF BNSF-DESIGNED GRADE SEPARATION IS ANTICIPATED AT ALL BNSF-DESIGNED GRADE SEPARATIONS. (SEE SK3831)
  - c. EXISTING RR UNDERPASS WIDENED TO SUPPORT THE RR AND HST TRACKS. (SEE SK1911 AND SK3911)
  - d. EXISTING GRADE SEPARATION WITH RR UNDERPASS. HST VIADUCT CONSTRUCTED PARALLEL TO AND OVER THE EXIST UNDERPASS. (SEE SK3871)
  - e. EXISTING AT-GRADE CROSSINGS REPLACED WITH A NEW GRADE SEPARATION. (SEE SK3971)
  - f. EXISTING AT-GRADE CROSSINGS SPANNED OVER BY A VIADUCT.
  - g. HST TRACKS INSTALLED THROUGH UNDER EXISTING ROADWAY STRUCTURE.

NOT FOR CONSTRUCTION FOR INTERNAL USE ONLY





# CALIFORNIA HIGH-SPEED TRAIN PROJECT LOS ANGELES TO ANAHEIM

CONSOLIDATED SHARED TRACK ALTERNATIVE 5% DESIGN
DESIGNER NOTES FOR DRAFT SUBMITTAL

HSR06-0005

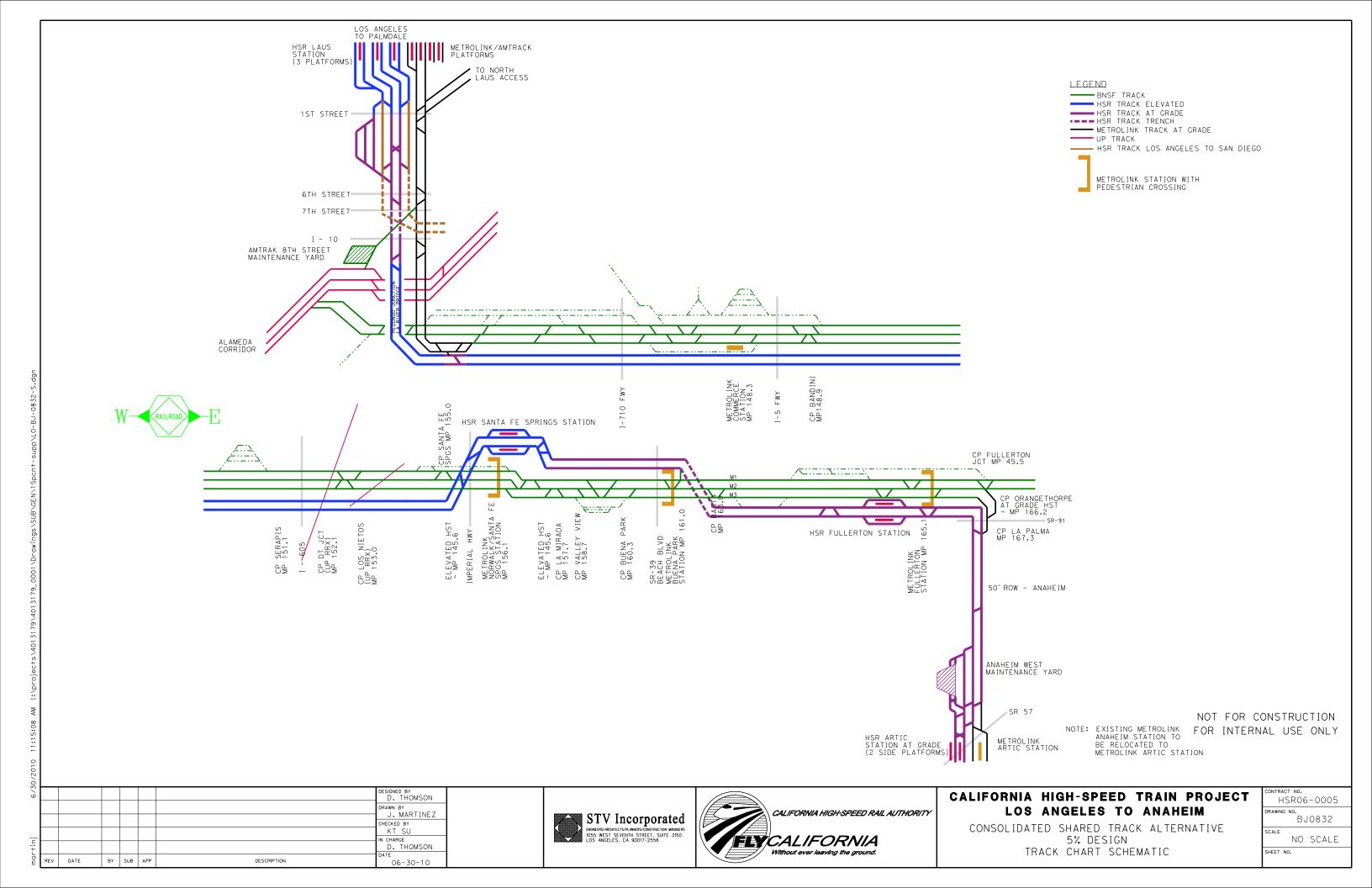
DRAWING NO.

BJ0831

SCALE

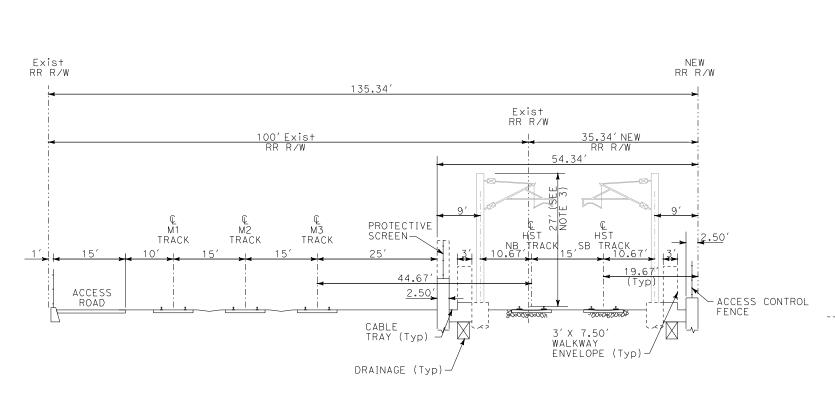
NO SCALE

SHEET NO.

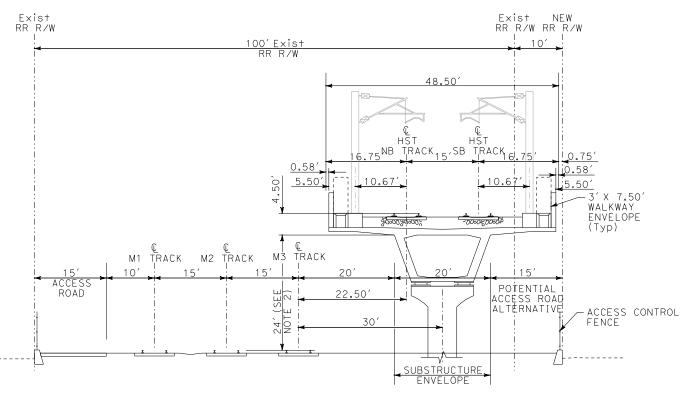


# NOTE:

- 1. VERTICAL CLEARANCE WILL BE INCREASED TO ACCOMMODATE EXISTING INDUSTRIAL SERVICE TRACK MOVEMENT BENEATH THE ELEVATED HST GUIDEWAY.
- 2. EXACT LOCATION OF M3 TRACK WILL IMPACT THE EXTENT OF AVAILABLE R/W.
- 3. HEIGHT FROM TOP OF RAIL TO TOP OF OCS POLE TO BE VERIFIED.



3+2 (HST) SHARED CONCEPT



3+2 (HST) ELEVATED HST SHARED CONCEPT

NOT FOR CONSTRUCTION FOR INTERNAL USE ONLY

m												
6/3							DESIGNED BY K. MCCULLOUGH					
							DRAWN BY K. MCCULLOUGH	1				
martinj							CHECKED BY					
							K.T. SU					
							D. THOMSON					
	REV	DATE	BY	SUB	APP	DESCRIPTION	06-30-10					





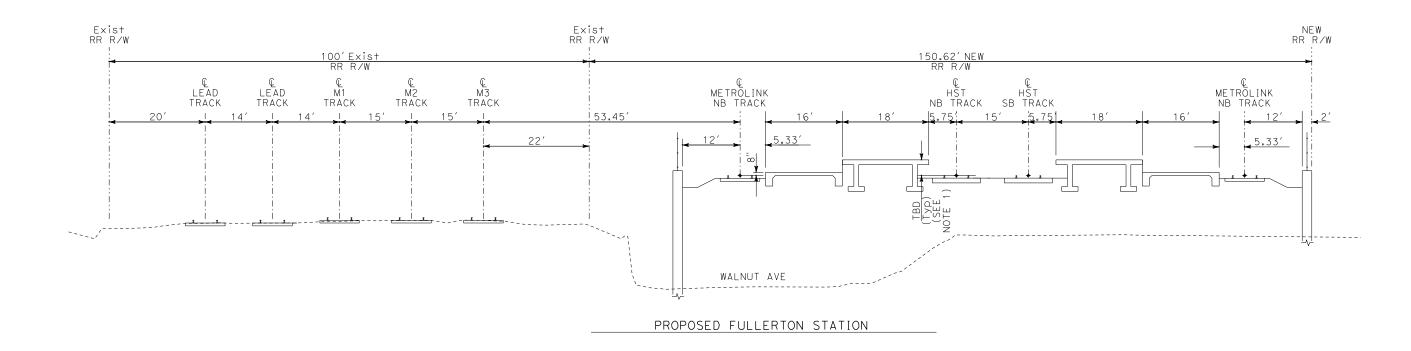
# CALIFORNIA HIGH-SPEED TRAIN PROJECT LOS ANGELES TO ANAHEIM

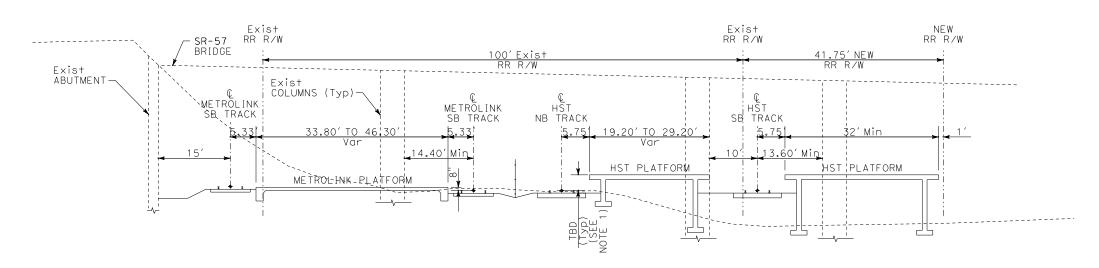
CONSOLIDATED SHARED TRACK ALTERNATIVE
5% DESIGN
TYPICAL CROSS SECTIONS

CONTRACT NO. HSR06-0005	
DRAWING NO.	
TJ3501	
SCALE	
AS SHOWN	
SHEET NO.	

# NOTE:

1. PLATFORM HEIGHT SUBJECT TO CHANGE.





PROPOSED ARTIC STATION

33														
6/3							DESIGNED BY K. MCCULLOUGH							
							DRAWN BY K. MCCULLOUGH	1						
							CHECKED BY							
. <u>-</u> -							K.T. SU							
martin							D. THOMSON							
	REV	DATE	BY	SUB	APP	DESCRIPTION	06-30-10							

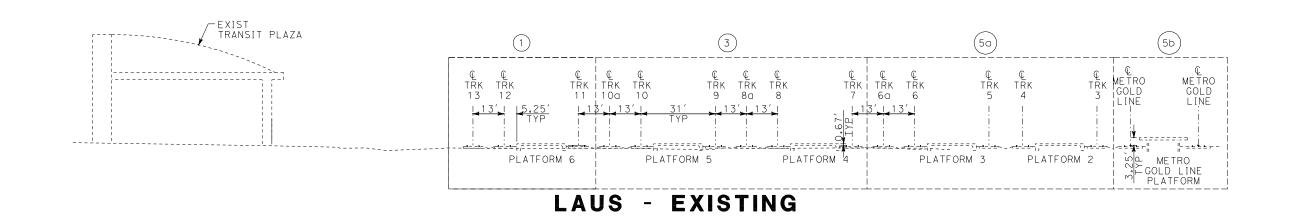


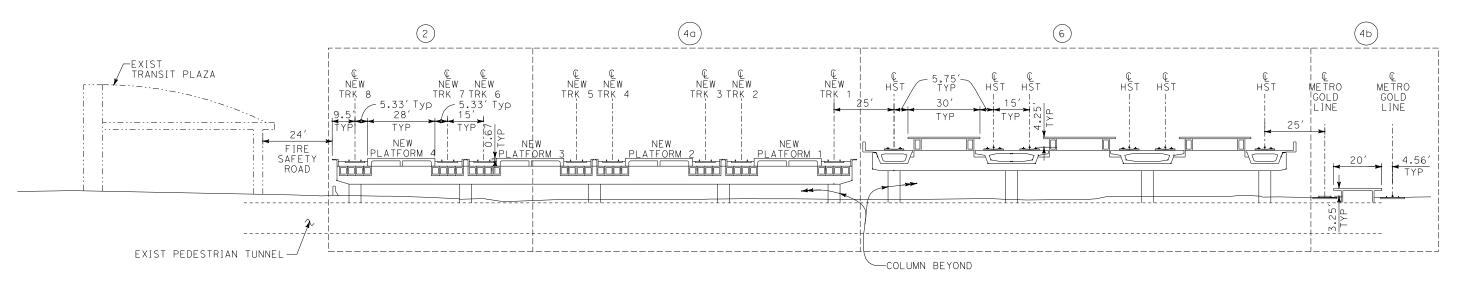


# CALIFORNIA HIGH-SPEED TRAIN PROJECT LOS ANGELES TO ANAHEIM

CONSOLIDATED SHARED TRACK ALTERNATIVE
5% DESIGN
PROPOSED STATION CROSS SECTIONS

CONTRACT NO.
HSR06-0005
DRAWING NO.
TJ3502
SCALE
AS SHOWN
SHEET NO.





LAUS - SHARED TRACK SAME LEVEL CONCEPT

# **CONSTRUCTION SEQUENCE:**

- SHUT DOWN TRACK 10g. DEMOLISH TRACK 11 THRU 13 AND PLATFORM 6.
  BUILD NEW TRACKS 6 THRU 8 AND NEW PLATFORM 4 AND 3 (PARTIAL).
  SHUT DOWN TRACK 6g AND 7. RELOCATE TRACK 8, 9 AND 10 TO NEW TRACK 6, 7 AND 8. DEMOLISH TRACK 7, 8, 8g, 9, 10 AND 10g AND PLATFORM 4 AND 5.
  BUILD THE REMAINING NEW TRACKS AND PLATFORMS FOR METROLINK/AMTRAK TRACKS.
  BUILD NEW TRACKS AND PLATFORM FOR METRO GOLD LINE. 4g AND 4b MIGHT BE PROCEEDED SIMULTANEOUSLY.
  RELOCATE TRACK 3 THRU 7 TO NEW TRACK 1 THRU 5.
  RELOCATE METRO GOLD LINE TRACKS.
  DEMOLISH REMAINING EXIST TRACKS AND PLATFORMS. BUILD HST STATION.

STV Incorporated  BIOMERIS/MONIECTS/PLANES/CONSTRUCTION IMMOGRS 105 WEST SEVENTH STREET, SUITE 3500 LOS ANGELES, CA 90017-2556  CALIFORNIA HIGH-SPEED RAIL AUTHORITY  CALIFORNIA HIGH-SPEED RAIL AUTHORITY  Without ever leaving the ground.	77
--	----



CONSOLIDATED SHARED TRACK ALTERNATIVE 5% DESIGN LAUS SAME LEVEL CONCEPT SCHEMATIC SECTION

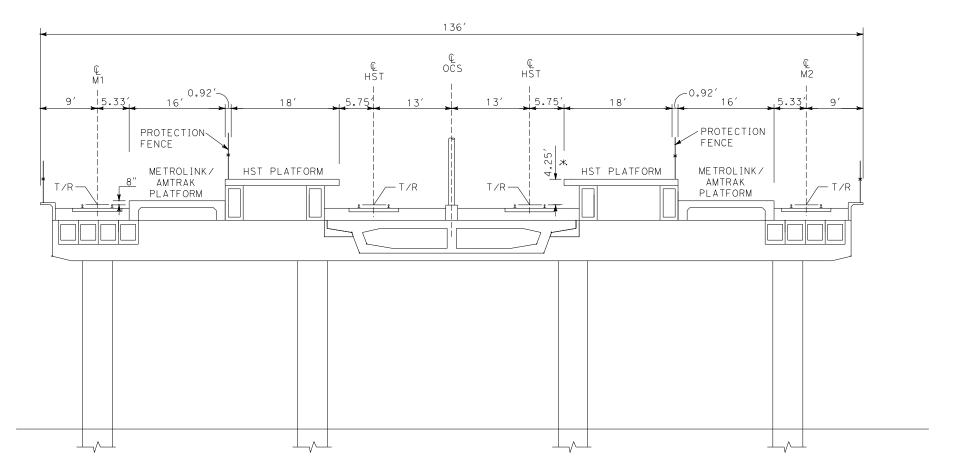
LOS ANGELES TO ANAHEIM

CONTRACT NO.
HSR06-0005
DRAWING NO.
CK1001
SCALE
AS-SHOWN
SHEET NO.

NOT FOR CONSTRUCTION FOR INTERNAL USE ONLY

							DESIGNED BY F. JEANG	
							DRAWN BY R. LIN	
L							CHECKED BY K.T. SU	
·L							IN CHARGE	ł
L							D. THOMSON DATE	
R	Eν	DATE	BY	SUB	APP	DESCRIPTION	06-30-10	



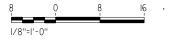


## NOTES:

- 1. STATION CONCOURSE NOT SHOWN AND TO BE DEVELOPED IN 15% DESIGN.
- 2. HST T/R AND METROLINK T/R ASSUMED TO BE AT SAME ELEVATION.
- \* HST PLATFORM HEIGHT SUBJECT TO CHANGE

# HST SANTA FE SPRINGS STATION CONCEPT

NOT FOR CONSTRUCTION FOR INTERNAL USE ONLY



9							pesigned by F. Jeang	
							DRAWN BY D. Saretsky	
							CHECKED BY	
+inj							K.T. Su	
							D. Thomson	
шā	REV	DATE	BY	SUB	APP	DESCRIPTION	06-25-10	





# CALIFORNIA HIGH-SPEED TRAIN PROJECT LOS ANGELES TO ANAHEIM

CONSOLIDATED SHARE TRACK ALTERNATIVE
5% DESIGN
SANTA FE SPRINGS STATION
SCHEMATIC SECTION

Γ	CONTRACT NO. HSR06-0005
	DRAWING NO. CK1002
	AS-SHOWN
	SHEET NO.

